



**Huntington Beach
Desalination Project**
Santa Ana Regional Water Board
February 8, 2019



History of Santa Ana Regional Board Approvals



NPDES Permit

August 2006 - NPDES Permit Issued

NPDES Permit/ CWC 13142.5(b) Determination

February 2012 – NPDES Permit Renewed and CWC Compliance determination made

Ocean Plan Amendment

May 2015 – State Water Board adopts OPA

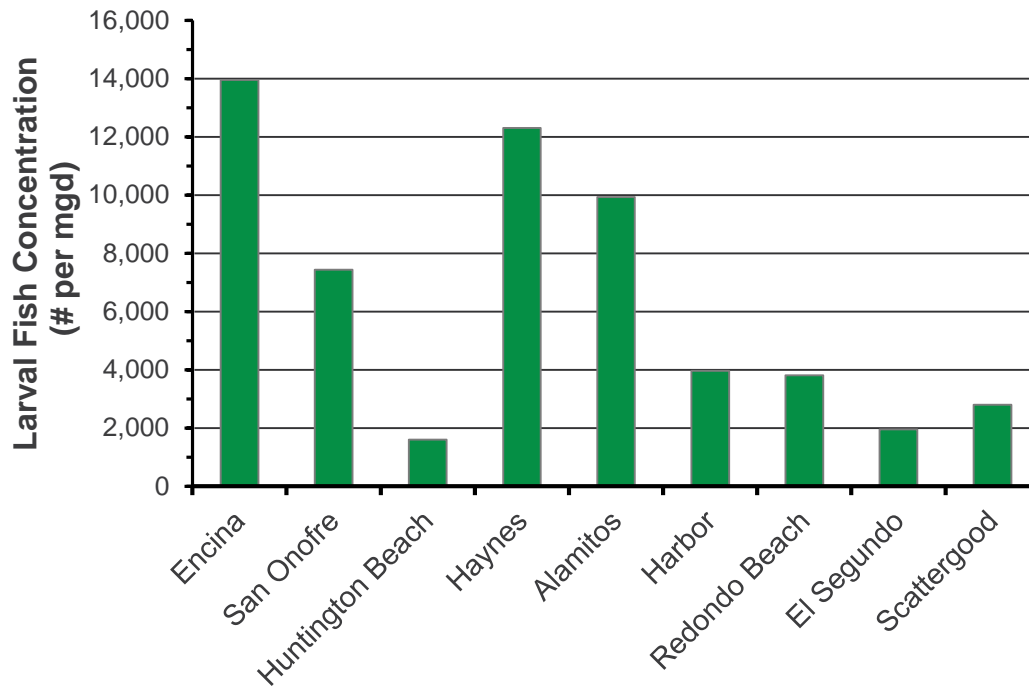
- March 2016 – application for amended and renew 2012 NPDES permit and CWC Compliance determination

2012 NPDES Permit – Water Code Compliance

Best Available site

- *“In the vicinity of the HBGS's intake and outfall, there are no Areas of Special Biological Significance (ASBS), no Marine Life Protection Areas (MLPA) and no state or federal threatened or endangered species that are expected to be affected by the Facility's seawater intake or discharge.” - NPDES Permit, p. F- 23*
- *“ ... larval entrainment losses due to the long-term stand-alone operation of the Facility are projected to affect only a small fraction of the larvae (0.02-0.28%) of the source water populations of approximately 115,000,000,000 (billion) larvae.” - NPDES Permit, p. F-34*
- Impacts on marine organisms due to the potential entrainment resulting from the project are *“relatively small, and would not substantially reduce populations of any affected species, or affect the ability of the affected species to sustain their populations.”* – City of HB 2010 FSEIR/SLC 2017 FSEIR
 - *“ ... this impact would not lead to populations falling below self-sustaining levels.”* – Dr. Raimondi, SLC's independent technical expert

Poseidon selected the best available site



Less than 2 larval fish per 1,000 gallons of sea water withdrawn

- Lowest larval fish concentrations of any of the intake locations studied in southern California
- Low abundances at HB are consistent with other locations with offshore intakes in sandy coastal areas such as El Segundo and Scattergood
- Diversity of taxa also lower at HB when compared to El Segundo and Scattergood
- Low impact location due to the absence of a diversity of habitats in vicinity of intake, and low abundances and diversity of larval fishes

Offshore Alternative Intake Sites Evaluated



Offshore alternative sites narrowed to two



Summary: Screened Seawater Intake Site Evaluation

- Coastal, surfzone, subtidal habitat offshore is homogenous - there is no difference in the habitat among the three considered intake sites.
- Moving the 1-mm screened seawater intake conflicts with OPA guidance.
- Existing entrainment data concludes there is no statistical difference in impact among the alternative intake sites.
- Moving the 1-mm screened seawater intake is infeasible.

Habitat Homogeneity

- Order No. R8-2012-0007, NPDES No. CA8000403, F-23

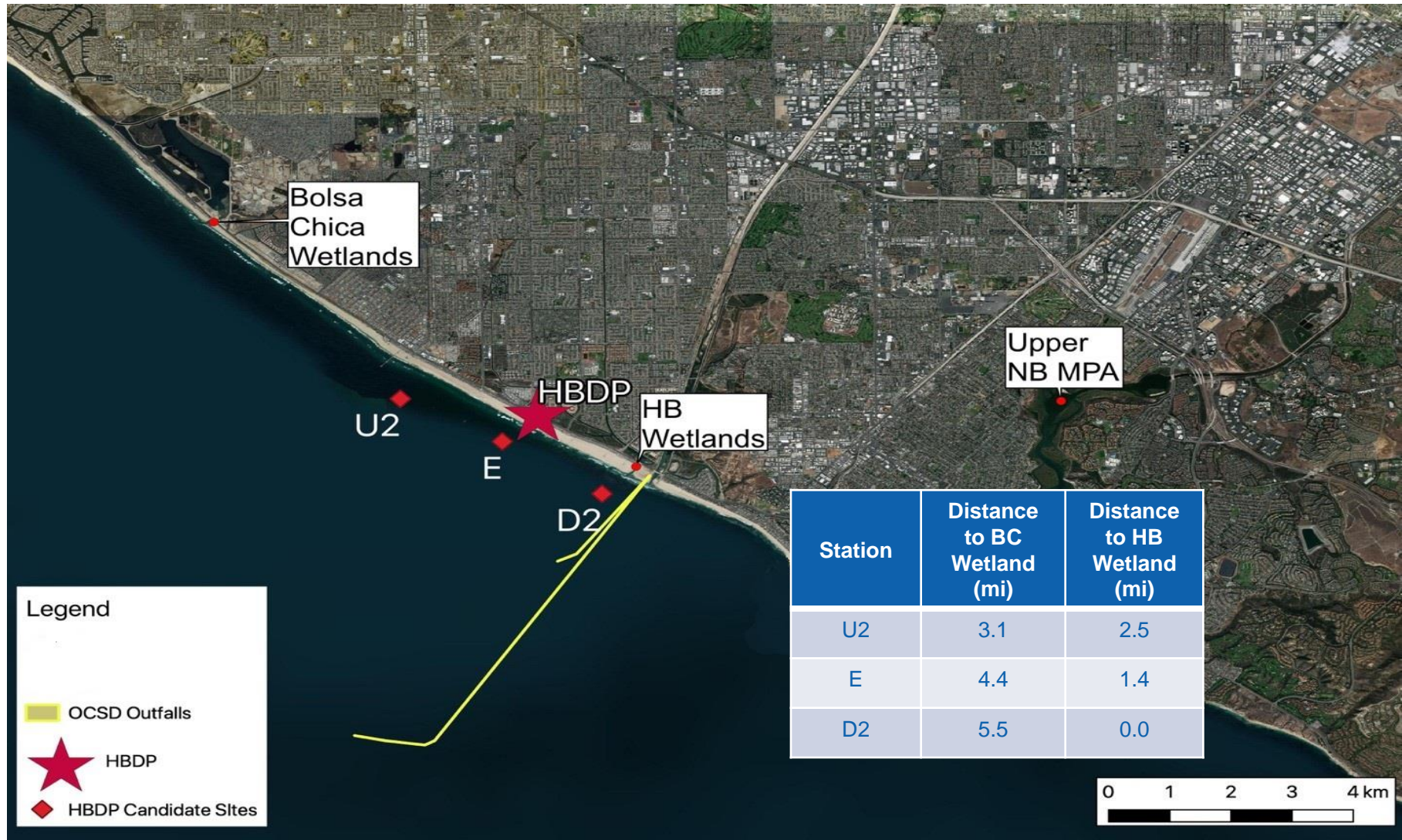
“ ... the location of the Facility along a fairly homogeneous stretch of coastline is dominated by sandy habitat that provides less diverse habitat for fishes than rocky coastal or estuarine areas ...”

- The same conditions exist today and all three candidate intake sites are located at the same distance and depth offshore within the same sandy bottom habitat.

Intake Siting Criteria in OPA – M.2.b.(7)

- *Ensure that the intake and discharge structures are not located within a MPA or SWQPA ... To the extent feasible, surface intakes shall be sited so as to maximize the distance from a MPA or SWQPA.*
- Merriam-Webster defines distance as “*the degree or amount of separation between two points, lines, surfaces, or objects.*”

Proposed intake site is comparatively farthest from MPAs and sensitive habitat



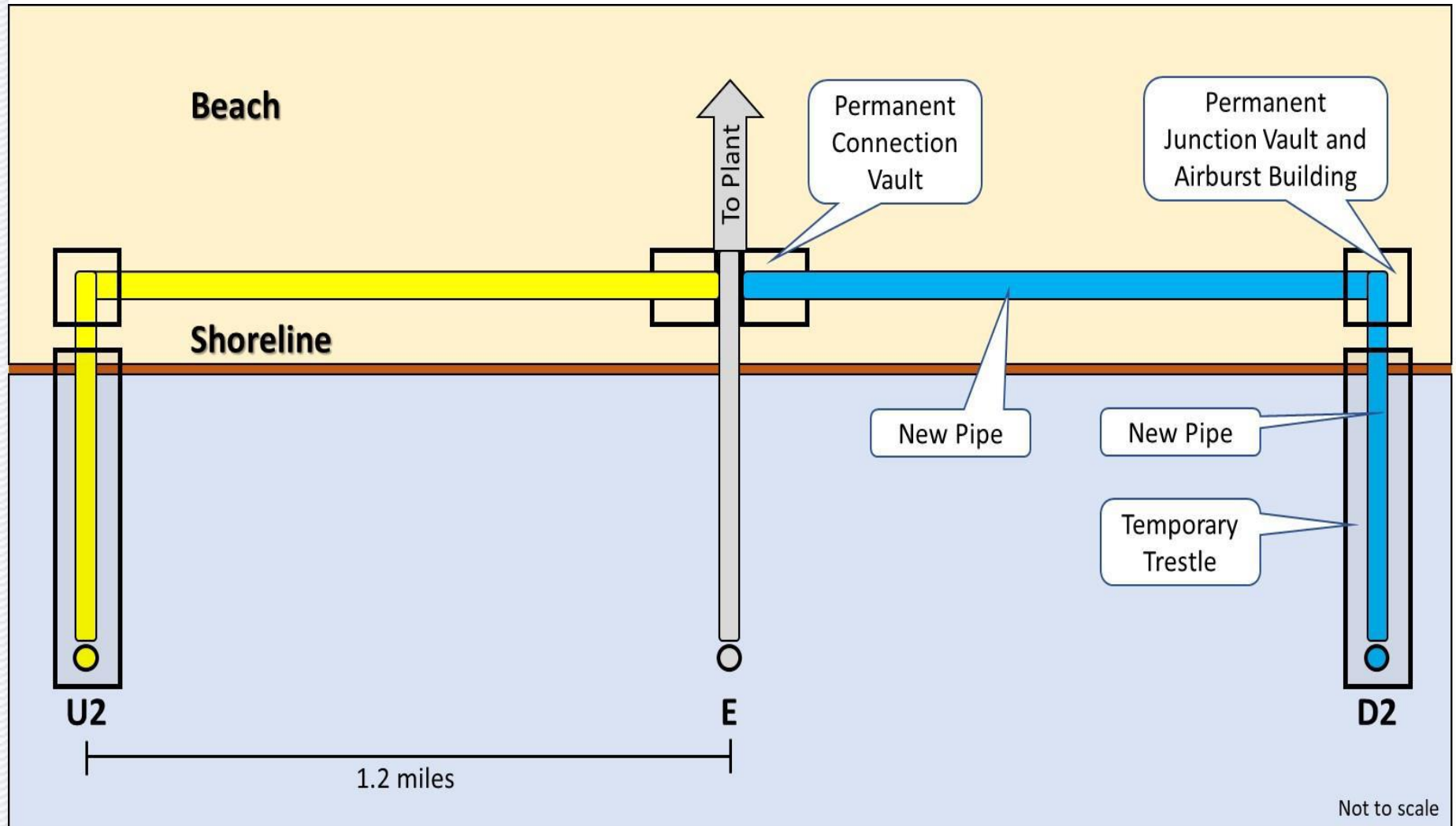
Ecological Comparison of Alternative Intake Sites

Ecological Findings	Site U2	Site E	Site D2
Statistically significant difference in larval entrainment	No	No	No
Least number of commercial/recreational fish entrained	No	Yes	No
Avoids temporary/permanent habitat loss to connect intake structure to onshore desal plant	No	Yes	No
Maximum distance away from an MPA, sensitive species nursery habitat, estuary, or other sensitive habitat	No	Yes	No

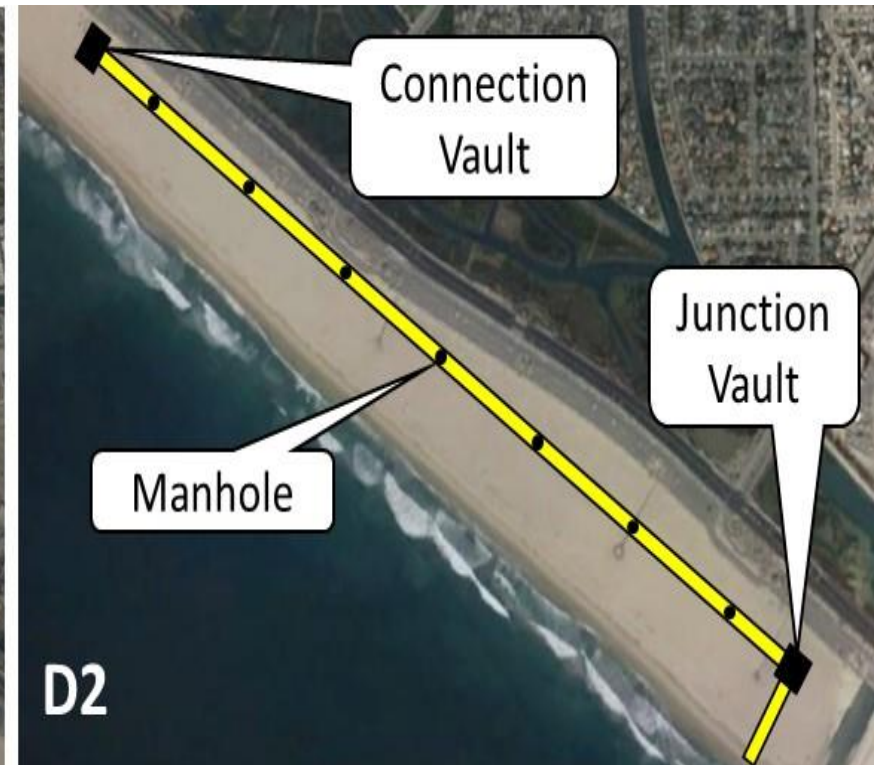
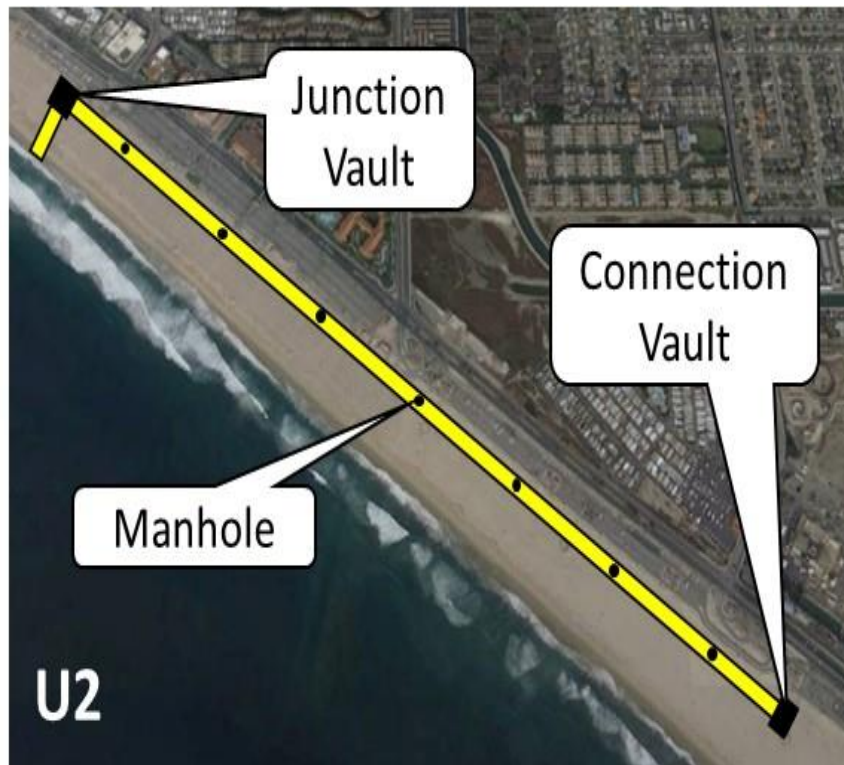
OPA Definition of Feasible

- Feasible is defined as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.”
- 5 feasibility criteria

Alternative Sites: 1-mm Screened Seawater Intake



Temporary and Permanent Beach Impacts



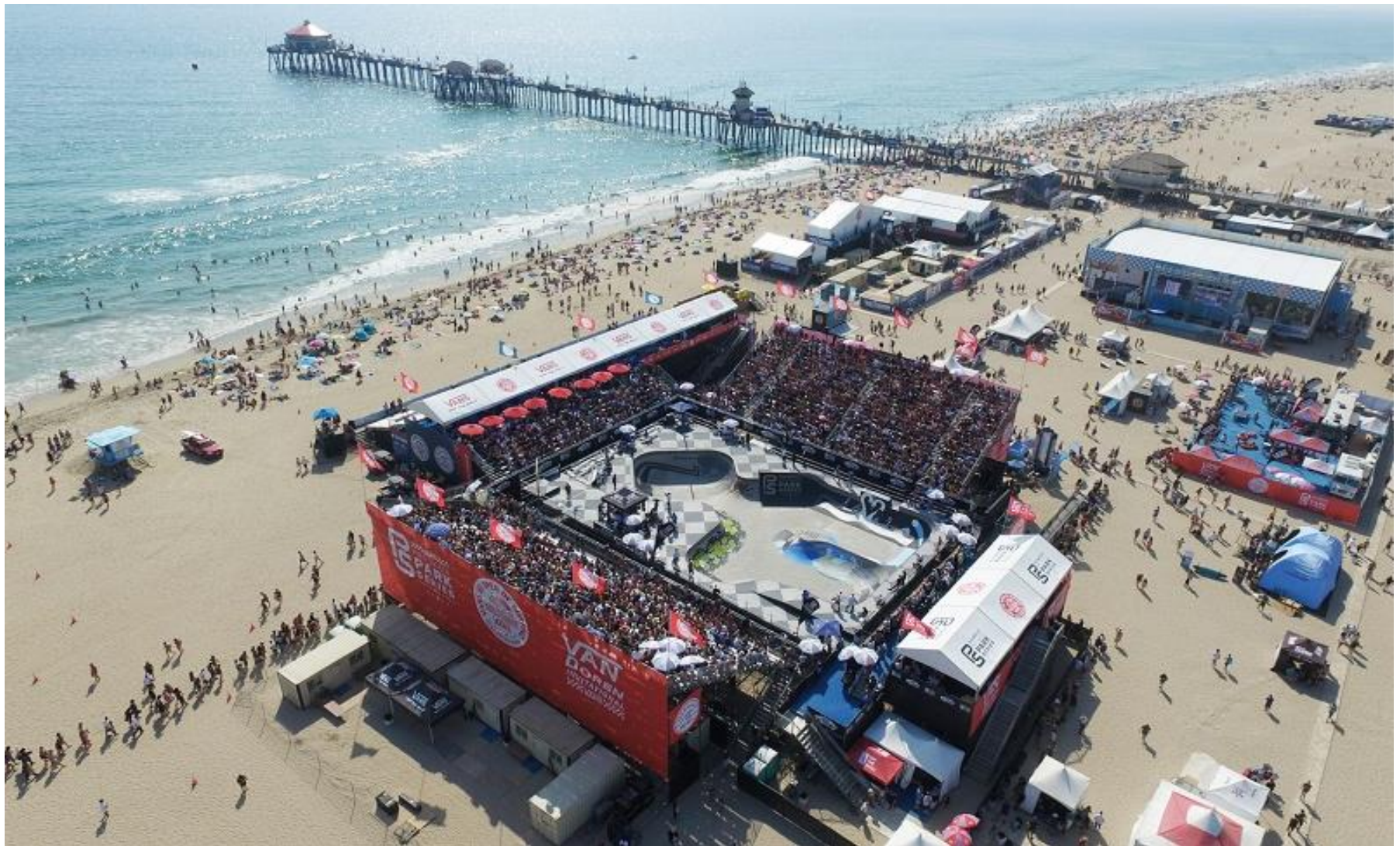
Historic photograph of the trestle erected to support offshore construction of the Huntington Beach Generating Station



Crowd dispersion during the Great Pacific Airshow



Crowd dispersion during US Open of Surfing



Intake Site Feasibility Summary

Feasibility Criteria	Site U2	Site E	Site D2
Timing	11-plus years	4.5 years	11-plus years
Technical	Significant construction impacts	Insignificant construction impacts	Significant construction impacts
Economic	\$1.5 Billion construction costs	\$1.0 billion construction costs	\$1.5 Billion construction costs
Environmental	Increased benthic impacts and increased GHG emissions	Least benthic impacts and significant GHG emissions	Increased benthic impacts and increased GHG emissions
Social	Significant impacts to recreational resources	No impacts	Significant impacts to recreational resources

Alternative 1-mm Screened Intake Site Conclusions

- **Regional Board has already determined the proposed intake site complies with CWC 13142.5(b).**
- **Proposed intake site is best intake location to minimize intake and mortality of all forms of marine life.**
 - **Propose site has lowest ecological risk and there is no scientifically defensible ecological justification for moving the intake site**
- **OPA requirements eliminate stations U2 and D2 because they are closer to MPAs and sensitive habitat.**
- **Intake sites U2 and D2 are not capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.**



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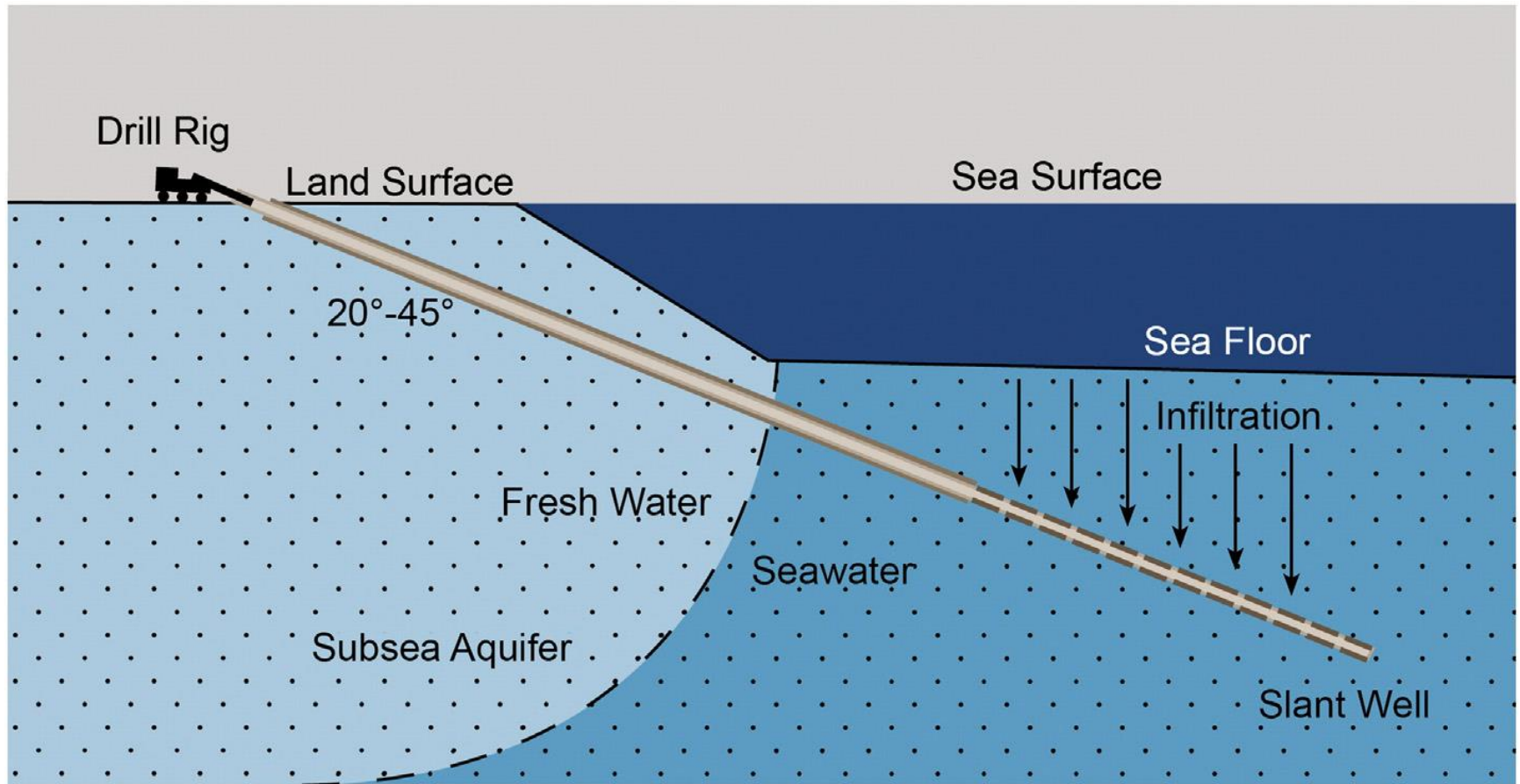




History of Slant Well Feasibility Determinations



Conceptual Beach Slant Well



Regional Board Finds beach wells infeasible

- “Beach wells (i.e., vertical, horizontal and slant) require service roads, collector pipelines to move the water to the desalination facilities and power supplies. *The construction and operation of these facilities would produce significant aesthetic and coastal resources impacts, while limiting public access to the beachfront and increasing the Facility's seawater intake energy consumption.*”
- “The alternative subsurface intake systems were determined *not to be the environmentally preferred alternatives*. Taking into account economic, environmental and technological factors, the Regional Water Board finds that the alternative subsurface intakes are not feasible.”
- “potential long-term adverse environmental impacts associated with the dewatering of the adjacent Talbert, Brookhurst, and Magnolia Marshes due to the operation of subsurface intake wells. *Long-term dewatering could result in irreversible damage to the marshes and negate years of restoration measures.*”

- Order No. R8-2012-0007, NPDES No. CA8000403, F-27 and 28

Coastal Commission ISTAP Findings

- In 2014, Coastal Commission's Independent Scientific & Technical Advisory Panel ("ISTAP")
- Beach wells are technically infeasible for the proposed Project due in part to: (a) performance risk; (b) local hydrologic conditions that would result in adverse environmental impacts including to fresh water aquifers and local wetlands; (c) sensitivity to sea level rise; (d) poor geochemistry and (e) lack of precedent in similar geological conditions.
- "local hydrogeologic conditions that would result in adverse impacts to the environment, such as moving containments seaward and damaging local wetlands."

Coastal Commission's WIT

- In 2014, Coastal Commission requested an independent Well Investigation Team (“WIT”) further investigate the hydrogeologic effects of subsurface wells on the groundwater basin and local wetland
 - Concluded up to 2.0% of the water coming from local wetlands.
- The conclusions reached by the Coastal Commission’s WIT underwent further independent 3rd party peer review by the Coastal Commission’s Dr. Detwiler and the Orange County Water District hydrogeologist Roy Herndon.

2019 State Lands Commission Superior Court Ruling

- Coastkeeper alleged: New studies since 2010 show that subsurface intakes to mitigate the Project's environmental impacts may be available.
- Court ruled: the Supplemental EIR adequately discusses subsurface intakes, and that the evidence before the Commission supported a finding that subsurface intakes at the Project site are infeasible.

Hybrid slant well conclusions

- Limited to 3.8 MGD (~4% of plant's capacity)
 - Long-term impacts to wetlands would persist.
 - Beach facilities vulnerable to sea level rise and coastal erosion.
 - poor geochemistry from mixing two sources of water.
 - Performance risk due to no full-scale operating precedent.
 - Hybrid not required - CWC and OPA allow for mitigation.



History of CWC 13142.5(b) and OPA Compliance



Poseidon's History With the Ocean Plan Amendment

- Poseidon believes that the Ocean Plan Amendment embodies the Santa Ana Regional Board's decision-making process in 2006 and 2012 when it applied section 13142.5(b) to Poseidon's project

CA State Water Code Section 13142.5(b)

- Statutory authority for the Ocean Plan Amendment
- Requires “best available site, design, technology and mitigation measures feasible to minimize the intake and mortality of all forms of marine life”
 - “Feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.”

2012 NPDES Permit – Water Code Compliance

➤ **Best Available Site, Design, Technology and Mitigation**

“In summary, the Regional Water Board finds that the Facility's temporary standalone operational scenario is in compliance with California Water Code Section 13142.5(b) as it employs the best site, design, technology and mitigation feasible to minimize the intake and mortality of marine life (see table F-7).”

(2012 NPDES Permit, p. F-35)

2012 NPDES Permit – Water Code Compliance

Table F-7. Design, Technology, and Mitigation Measures to Minimize Impacts to Marine Life

Category		Operational Scenario	Feature	Result
1. Site	1.1	Temporary Stand-Alone	Proposed location at Huntington Beach Generating Station (HBGS)	Best available site for the project, no feasible and less environmentally damaging alternative locations.
	1.2	Temporary Stand-Alone	Proposed location at Huntington Beach Generating Station (HBGS)	No Areas of Special Biological Significance (ASBS), no Marine Life Protection Areas (MLPA) and no state or federal threatened or endangered species in the vicinity of the HBGS's intake and outfall.
2. Design	2.1	Temporary Stand-Alone	Connection to HBGS Discharge Pipeline	Screened water to reduce entrainment of marine organisms
	2.2	Temporary Stand-Alone	Reduction in inlet screen velocity	Reduction of impingement of marine organisms
	2.3	Temporary Stand-Alone	Connection to HBGS Discharge Pipeline	Deep water, offshore intake
	2.4	Temporary Stand-Alone	Reduction in fine screen velocity	Reduction of impingement of marine organisms
3. Technology	3.1	Temporary Stand-Alone	Intake velocity cap	Reduction of impingement of marine organisms
	3.2	Temporary Stand-Alone	Installation of VFD on Facility intake pumps	Reduce the total intake flow for the desalination facility to no more than that needed at any given time, thereby minimizing the entrainment of marine organisms.
4. Mitigation	4.1	Temporary Stand-Alone	Maintenance of existing 66.8 acres of wetlands mitigation for operation of 126.7 MGD intake	Compensates for unavoidable entrainment and impingement impacts and enhances the coastal environment.



Ocean Plan Amendment – Latham & Watkins Slides



Legal Precedent re: Section 13142.5(b) Determinations

Filed 11/30/12

CERTIFIED FOR PUBLICATION

COURT OF APPEAL, FOURTH APPELLATE DISTRICT

DIVISION ONE

STATE OF CALIFORNIA

SURFRIDER FOUNDATION,

Plaintiff and Appellant,

v.

CALIFORNIA REGIONAL WATER
QUALITY CONTROL BOARD, SAN
DIEGO REGION,

Defendant and Respondent.

D060382

(Super. Ct. No. 37-2010-90436-CU-
WM-OTL)

POSEIDON RESOURCES
(CHANNELSIDE) LLC, et al.

Real Parties in Interest and
Respondents.

Surfrider Foundation v. San Diego RWQCB

- Upheld the interpretation of “feasible” in the Water Code as consistent with CEQA’s definition:
 - “‘[f]easible’ means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.”

Surfrider Foundation v. San Diego RWQCB

- “We note that the statutory language refers to ‘site, design, technology, and mitigation measures.’ (§ 13142.5, subd. (b).) ***Nothing in the statutory language indicates that one type of measure should be relied upon to the exclusion of others.***” (Emphasis added)
- “[A]ll of the site, design, technology and mitigation measures, when taken *collectively*, should, if feasible, achieve a reduction in the intake *and* mortality of marine life.”

Relationship Between Water Code and Ocean Plan

- Ocean Plan provides regulatory measures that implement/interpret the Water Code
- In the event of a conflict between the Ocean Plan and the Water Code, the Water Code prevails
 - Ocean Plan Introduction (Purpose and Authority): “In furtherance of legislative policy set forth in section 13000 of Division 7 of the California Water Code (CWC) (Stats. 1969, Chap. 482) pursuant to the authority contained in section 13170 and 13170.2 (Stats. 1971, Chap. 1288) . . .”
 - Ocean Plan Applicability: “Provisions regulating the intake of seawater* for desalination facilities* are established pursuant to the authority contained in section 13142.5 subdivision (b) of the California Water Code (Stats. 1976, Chap. 1330).”

Interpretation But Not New Legislation

- The Ocean Plan Amendment **does not** alter the existing caselaw interpreting Water Code section 13142.5(b), including the Surfrider and Voices of the Wetlands cases.
- The Ocean Plan Amendment **does not** change the standards and procedures this Board has already used to evaluate desalination projects.
- Instead, the Ocean Plan Amendment should be seen as embodying and setting forth the procedures which your Staff and this Board used in 2012 to implement the Water Code.



POSEIDON WATER

Huntington Beach Desalination Project – Back- Up Slides



Discretionary Permits | Status



Local Land Use Permits:

EIR Certified – Sept 2005
SEIR Certified – Sept 2010
HB Conditional Use Permit – Feb 2006/10
HB Coastal Development Permit- Feb 2006/10



NPDES Permit/ 13142.5(b) Determination

Permit Issued –Aug 2006
Permit Renewed – Feb 2012
Ocean Plan Amendment Certification - Spring 2019

Ocean Plan Amendment

Adopted (along with environmental impact report equivalent document (SED)) – May 2015

Department of Drinking Water

DDW Permit Conceptual Approval – August 2002



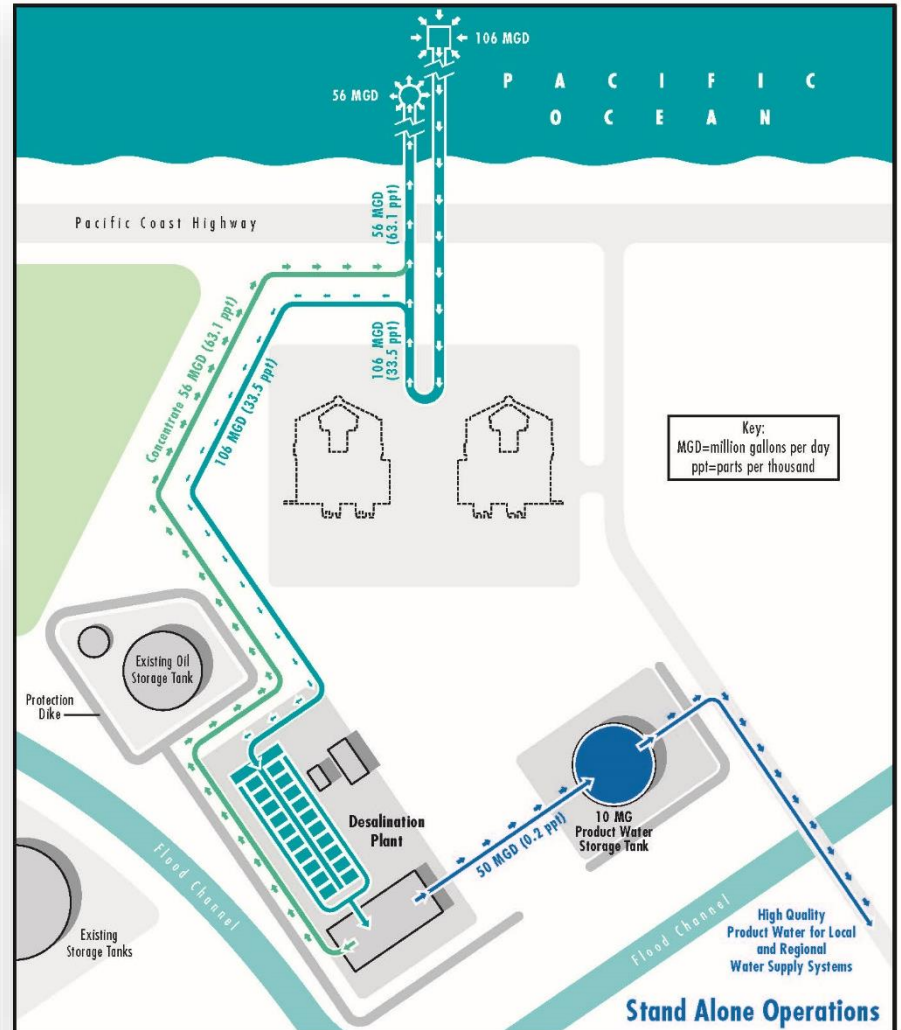
State Lands Commission

Lease for Intake and Discharge Piping – Approved - October 2010
EIR and Lease Amendment – October 19, 2017

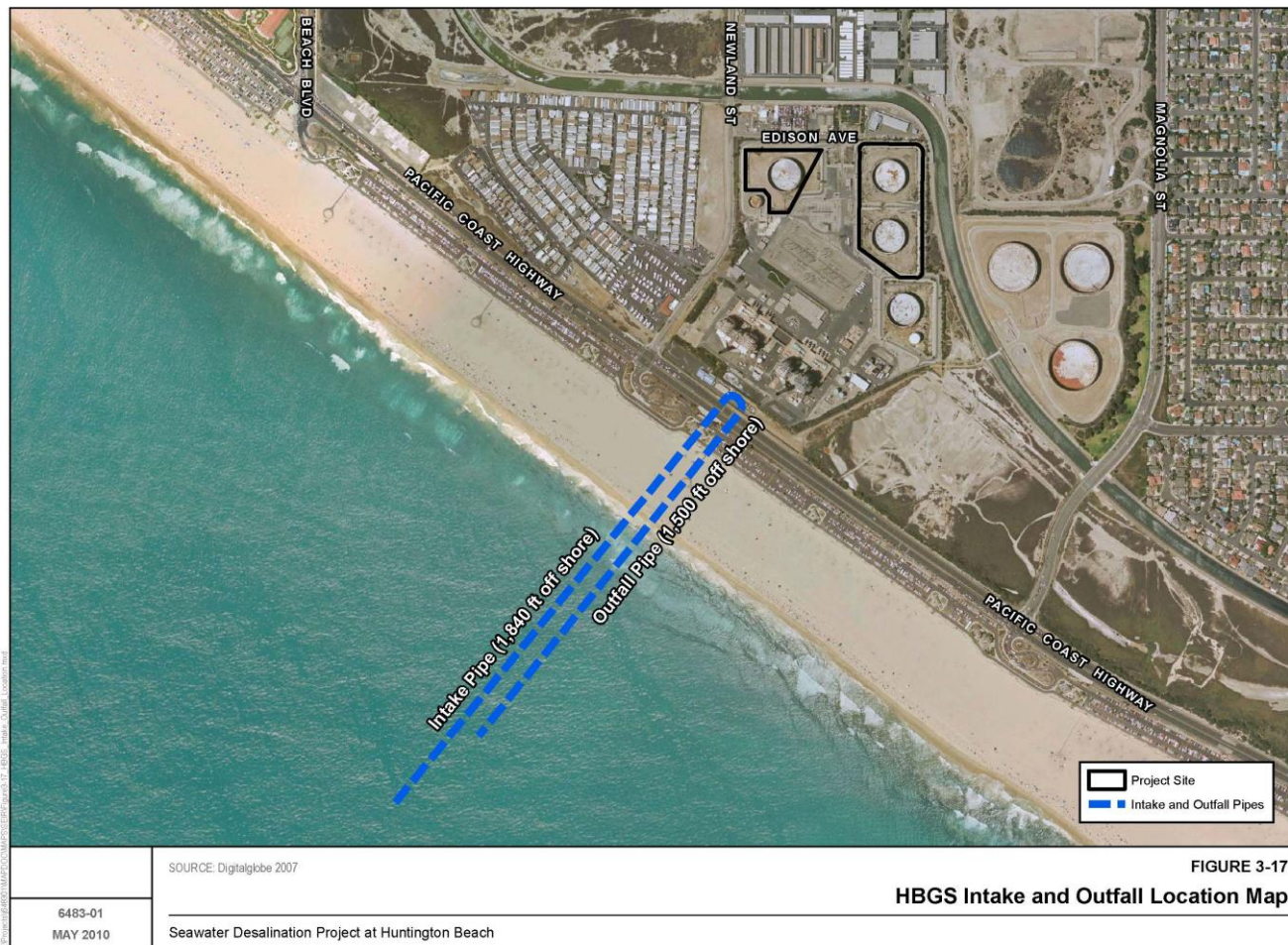
California Coastal Commission

Coastal Development Permit – Summer 2019

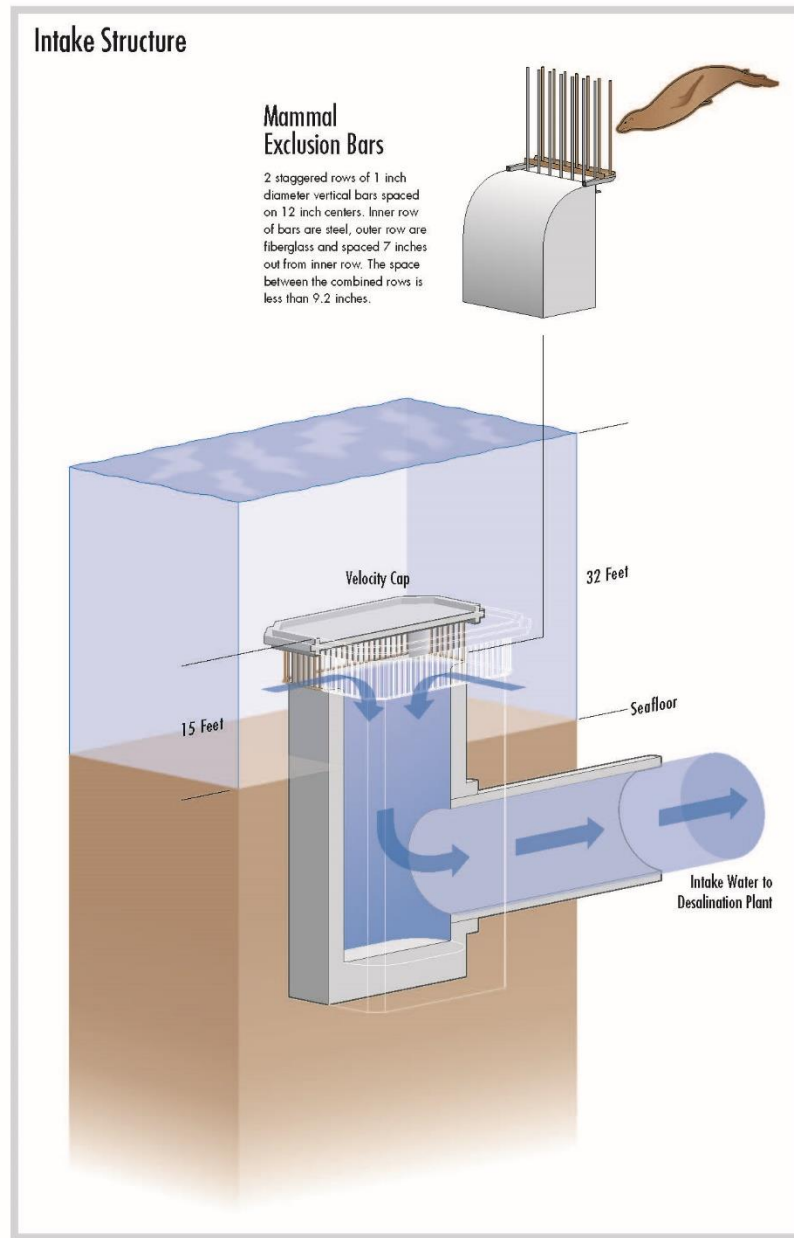
Huntington Beach Project Site



Offshore Intake and Outfall Pipelines

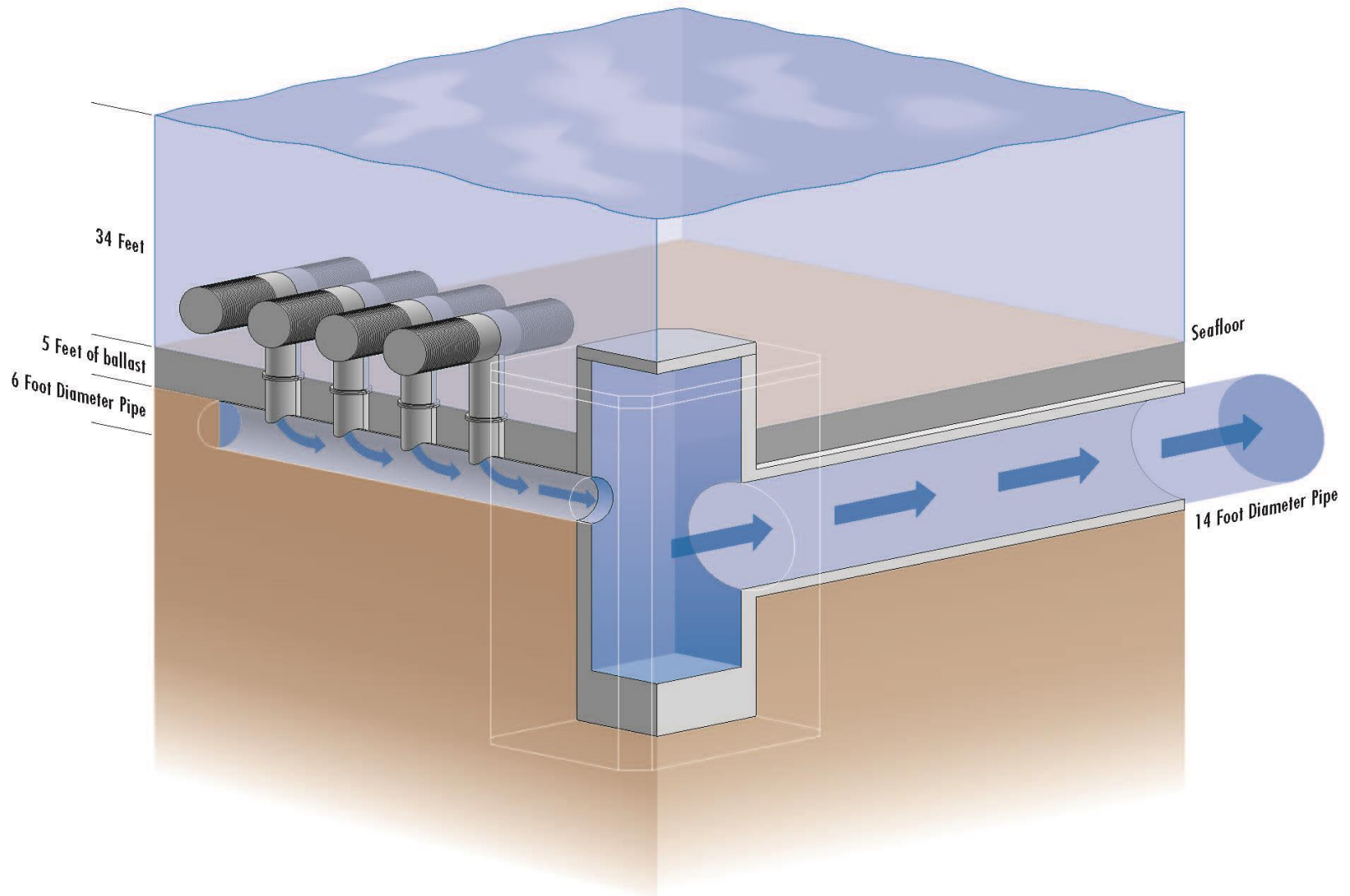


Existing Seawater Intake System

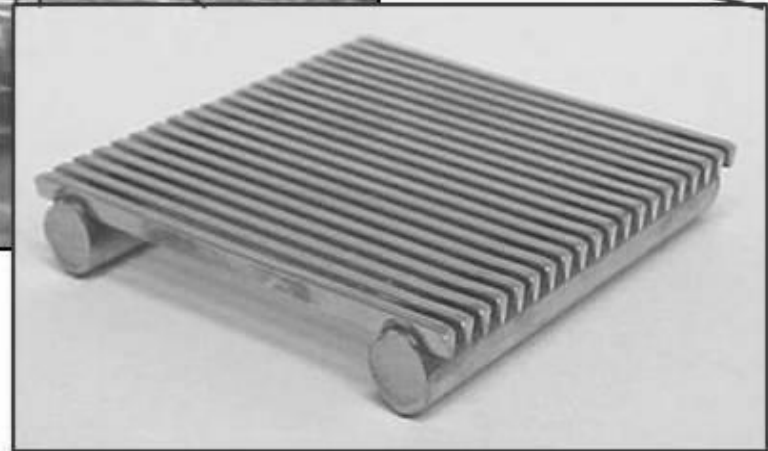
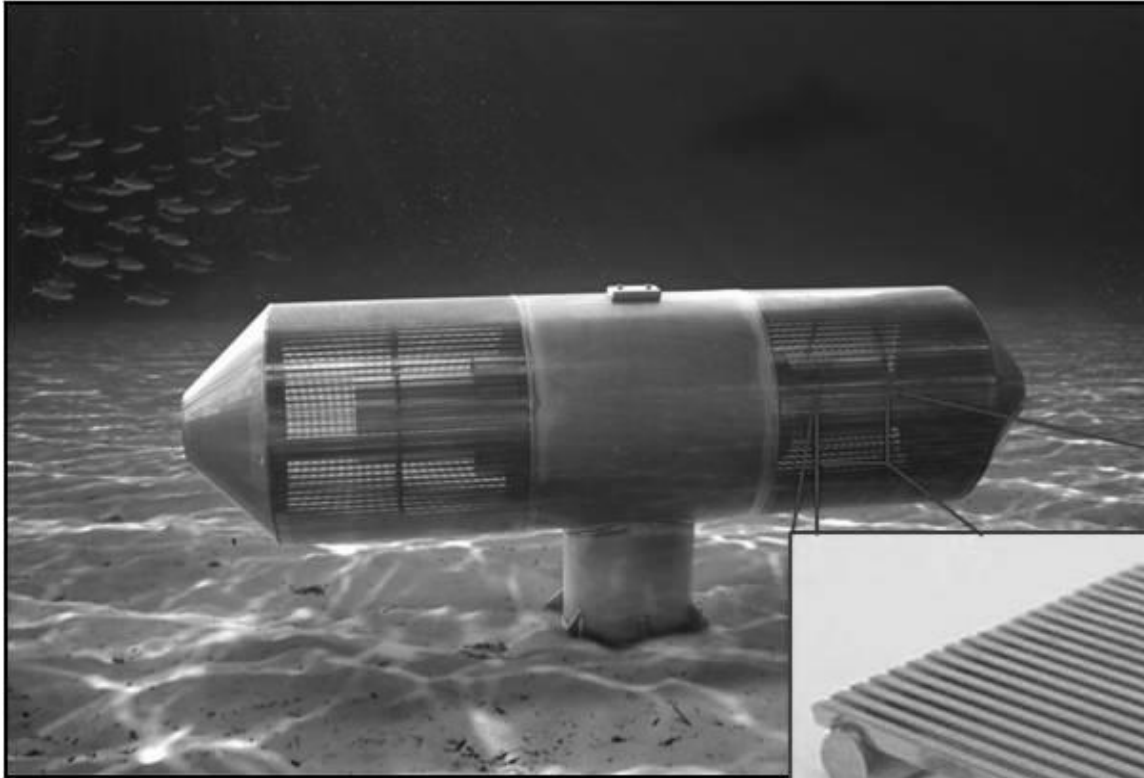


Huntington Beach Desalination Facility
Proposed Huntington Beach Desalination Project
1mm wedgewire screens

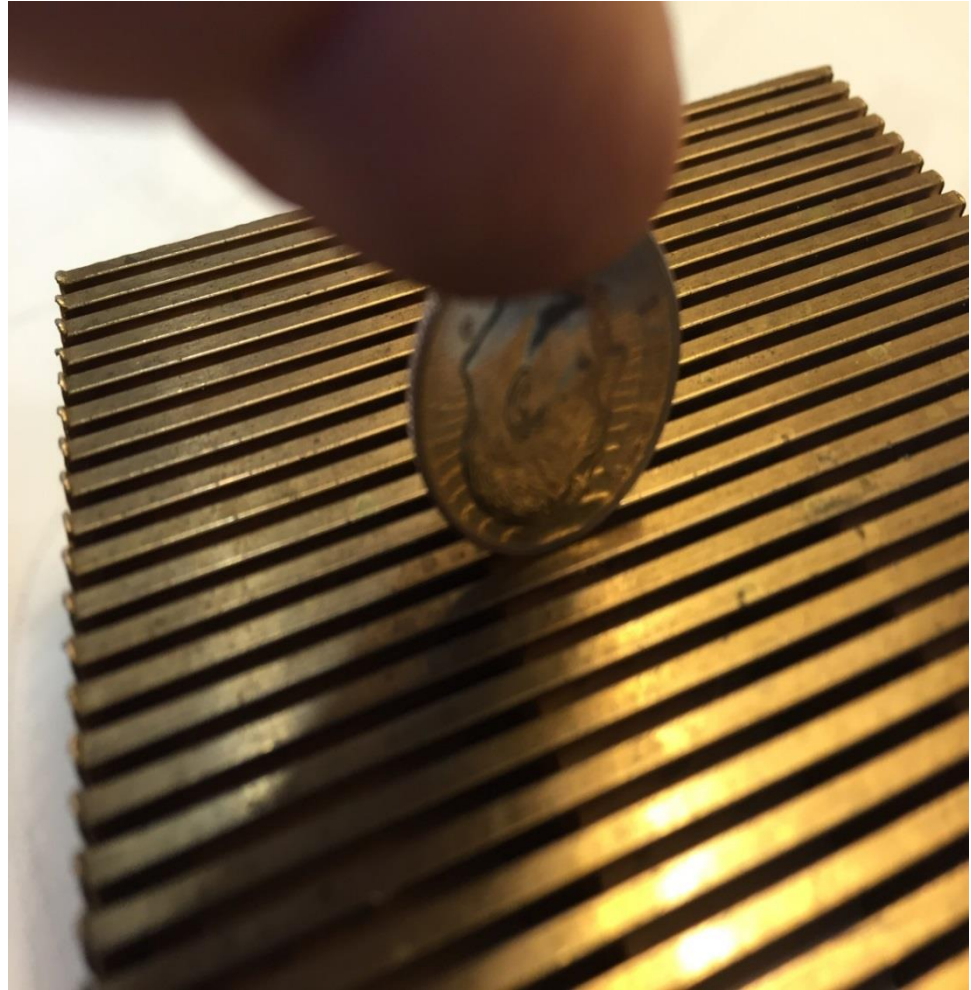
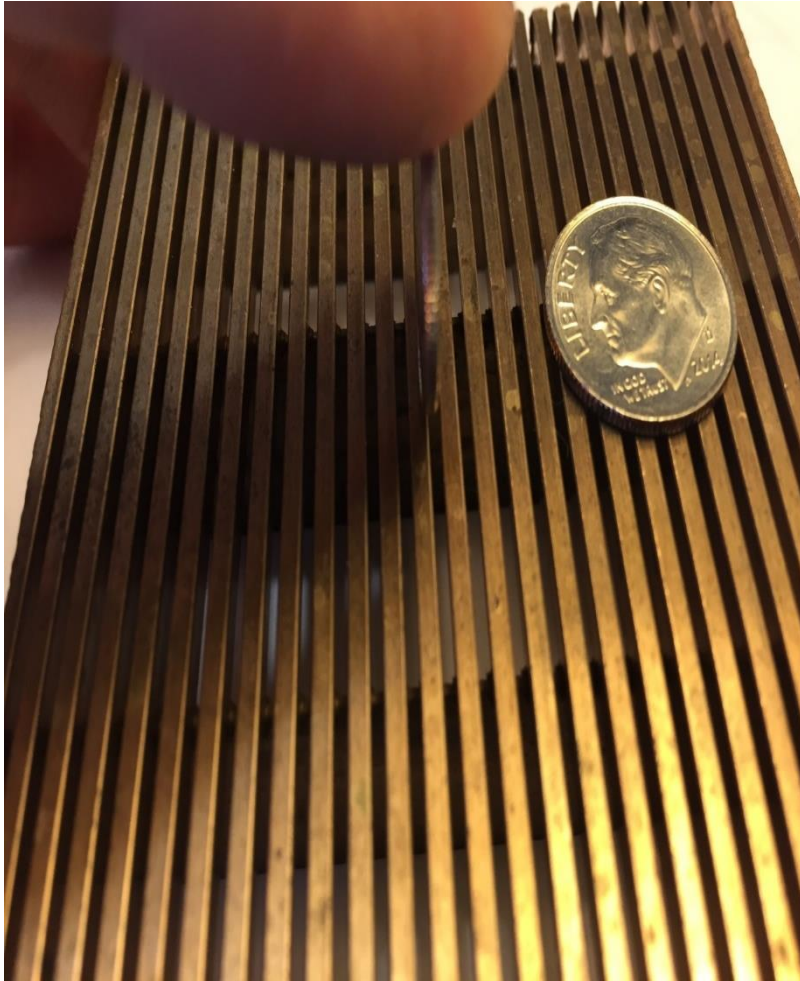
Proposed Seawater Intake System



Offshore Intake Modification – 1 mm Wedgewire Screen



Intake Technology - 1MM (1/25th inch) Wedgewire Screens



Seawater Intake Screens – WWS Pilot Study



Seawater Intake Screens – WWS Pilot Study

